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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/657,960

09/09/2003

Richard Charles Bernhardt

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08/10/2005

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EXAMINER

TSEGAYE, SABA

ART UNIT

PAPER NUMBER

2662

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/657,960	Applicant(s) BERNHARDT ET AL.	
	Examiner Saba Tsegaye	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed on 3/14/05. Claims 1-28 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 102

2. Claims 1-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Elliott (US 6,456,599).

Regarding claims 1 and 11, Elliott discloses a method for routing message data from a source node to a destination node in a mobile ad hoc network comprising a plurality of intermediate mobile nodes between the source node and the destination node, and a plurality of wireless communication links connecting the nodes together (column 2, lines 49-62), the method comprising:

obtaining traffic state information about the intermediate nodes between the source node and the destination node, the traffic state information, node residual capacity information, and node transit delay information (column 8, lines 1-16);

discovering candidate routes from the source node to the destination node, a route comprising a series of intermediate nodes and wireless communication links from the source node to the destination node (column 8, lines 17-34; column 9, lines 44-59); and

selecting at least one route, from among the candidate routes to distribute message data to the destination node, based upon the number of intermediate nodes and the traffic state

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information obtained for each of the intermediate nodes on the discovered route (column 10, lines 9-60; column 11, lines 29-40).

Regarding claim 2, Elliott discloses a method further comprising ranking the discovered candidate routes based upon the number of intermediate nodes and the traffic state information; wherein selecting the route is based upon the ranking (column 10, lines 15-21).

Regarding claims 3, 12 and 21, Elliott discloses a method wherein ranking the discovered routes comprises storing route entries in a route cache, each route entry corresponding to one of the discovered routes (column 3, lines 36-47; column 5, lines 46-52).

Regarding claims 4, 13 and 22, Elliott discloses a method wherein obtaining traffic state information comprises periodic transmission of traffic state information between the nodes (column 5, lines 20-33).

Regarding claims 5, 14 and 23, Elliott discloses a method wherein obtaining traffic state information comprises requesting traffic state information from the nodes by the source node (column 7, lines 22-35).

Regarding claims 6, 15 and 24, Elliott discloses a method wherein obtaining traffic state information comprises transmission of traffic state information between the nodes in response to a network event (column 5, lines 20-33).

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Regarding claims 7, 16 and 25, Elliott discloses a method wherein node resource utilization information comprises node traffic buffer utilization (column 5, lines 1-8; column 8, lines 13-16).

Regarding claims 8, 17 and 26, Elliott discloses a method wherein node resource utilization information comprises node traffic queue utilization (column 8, lines 13-16).

Regarding claims 9, 18 and 27, Elliott discloses a method wherein node residual capacity information comprises available node capacity beyond that being used by unrelated traffic (column 5, lines 1-8).

Regarding claims 10, 19 and 28, Elliott discloses a method wherein node transit delay information comprises a time from when a node receive message data to transmission of the message data (column 6, lines 46-63).

Regarding claim 20, Elliott discloses a mobile node for use in a mobile ad hoc network defined by a plurality of mobile nodes and a plurality of wireless communication links connecting the plurality of mobile nodes together (column 2, lines 49-62), the mobile node comprising:

a communications device (mobile station) to wirelessly communicate with other nodes of the plurality of nodes via the wireless communication links (column 2, lines 49-62); and

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a controller (CPU 3) route communications via the communications device, the communications comprising message data, the controller comprising:

a traffic state monitoring unit to obtain traffic state information about the plurality of nodes, the traffic state information including resource utilization information, residual capacity information and transit delay information (column 8, lines 17-34);

a route discovery unit to discover candidate routes to a destination node (column 8, lines 17-34; column 9, lines 44-59),

a route ranking unit to rank candidate routes based upon the number of nodes and the traffic state information of the nodes on the candidate route (column 10, lines 9-60; column 11, lines 29-40), and

a message data distribution unit to distribute the message data to the destination node along at least one candidate route based upon the rank (column 10, lines 15-21).

Response to Arguments

3. Applicant's arguments filed 03/14/05 have been fully considered but they are not persuasive. Applicants argue that Examiner has mischaracterized such broad teaching as meeting the claimed features of node resource utilization information, node residual capacity information, and node transit delay information. Examiner respectfully disagrees with Applicants assertion. As Applicants recognize and state on the page 10, Elliot discloses an ad hoc network wherein network information is received from other nodes of the network. The **network information** includes information of the potential neighboring stations to which it has operational links, along with their varying metrics (a metric that describes the serviceability of the link between that

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potential neighbor). The Examiner still contends that **the network information** (queuing delays at a node, statistical delay probabilities caused by interference or disruption of a transmission signal between nodes and congestion through a node) disclosed by Elliot can be meet the claimed feature of node resource utilization information, node residual capacity information, and node transit delay information respectively.

Further, Applicants argue that the portions of the Elliott reference specifically relied upon by the Examiner does not teach the use of traffic buffer/queue utilization, available node capacity beyond that being used by unrelated traffic, or transit delay time from when a node receives message data to transmission thereof. Examiner respectfully disagrees. It should be noted that the terms, as recited in the instant application, “node resource utilization information”, “node residual capacity information”, and “node transit delay information” are broad. Therefore, Examiner has treated these terms as “queuing delays at a node (claimed queue utilization)”; “statistical delay probabilities caused by interference or disruption of a transmission signal between nodes (claimed available node capacity beyond that being used by unrelated traffic)”; and “congestion through a node (claimed transit delay time...)” Examiner believes that such broad interpretation is proper and therefore, the rejection is maintained.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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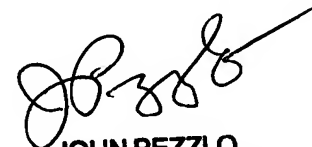
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
August 5, 2005


JOHN PEZZLO
PRIMARY EXAMINER